**TRABAJO DE FIN DE GRADO**

# «Teaching and Assessing Foreign Language Learning through Apps»

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# INDEX

# 1. ABSTRACT AND KEYWORDS

Languages change and develop together with human race. As time goes on, languages adapt to human beings' needs and preferences. This also applies to foreign language learning and teaching processes, which keep on renovating their approaches and teaching methods in order to connect to learners' needs in modern times. Nowadays, information and communication technologies (ICT) play such an important role in our everyday lives that they have also found their way into this field. This has given rise to constant innovations such as Mobile-Assisted Language Learning (MALL). Although MALL has existed for more than twenty years, it still undergoes changes and even faces some challenges. Currently, apps appear as new ways of approaching foreign language learning and teaching. In this paper, a Systematic Literature Review (SLR) is conducted, in which MALL studies on the use of apps are examined. The purpose of this analysis is to determine if their use is increasing, on the one hand, and, on the other, to present the tendencies these papers reveal. To this end, a total of 35 valid studies published from 2012 to 2015 are thoroughly analysed, focusing on both the different types of learning supported by the apps and on the kind of assessment the papers propose. The results show that the use of apps in MALL is increasing, but also that the type of learning supported by most apps is not very different from that of traditional learning approaches.

**Keywords:** foreign language, teaching, learning, mobile learning, Mobile-Assisted Language Learning (MALL), smartphones, apps, information and communication technologies (ICT), seamless learning, ubiquitous learning, Systematic Literature Review (SLR).

## 1.1. Resumen y palabras claves

Las lenguas cambian y avanzan junto con la raza humana, adaptándose a nuestras necesidades y preferencias a medida que el tiempo transcurre. Esta misma idea se puede aplicar a la enseñanza y aprendizaje de idiomas extranjeros, cuyos métodos se renuevan continuamente con el fin de conectar con las necesidades de los alumnos en tiempos modernos. Como resultado del papel tan importante que hoy juegan las tecnologías de la información y la comunicación (TIC) en nuestras vidas, estas han sido integradas en el mundo de los idiomas. Esto ha dado lugar a continuas mejoras como el aprendizaje de idiomas mediante tecnología móvil. A pesar de que esta disciplina nació hace más de veinte años, todavía sufre cambios e incluso se enfrenta a algunos desafíos. Actualmente, las *apps* se han convertido en nuevas formas de enfrentarse a la enseñanza y al aprendizaje de idiomas. En este trabajo, se lleva a cabo un estudio sistemático de la literatura existente, en el que se analizan publicaciones donde se expone el uso o la presentación de *apps* con este propósito. El objetivo de este análisis es demostrar que su uso está en aumento, así como estudiar las tendencias que se presentan en ellas. Para ello, se pretende estudiar a fondo 35 estudios válidos publicados entre 2012 y 2015, centrándonos especialmente en los diferentes tipos de aprendizaje que las *apps* soportan y los tipos de evaluación propuestos. Los resultados obtenidos apuntan que el uso de *apps* en la enseñanza de idiomas está en aumento, pero también que el tipo de aprendizaje que estas soportan no es muy diferente de aquel propuesto por métodos tradicionales.

**Palabras clave:** lengua extranjera, enseñanza/aprendizaje de lenguas extranjeras mediante tecnología móvil (MALL), smartphones, apps, tecnologías de la información y la comunicación (TIC), aprendizaje ubicuo, Revisión Sistemática de la Literatura (RSL).

## 2. INTRODUCTION

My interest in the use of mobile apps for foreign language teaching and learning has its roots in my experience as a learner of several foreign languages such as English, German and French. This has provided me with insight into how languages can be taught, what kind of teaching approaches can be used and what tools can be integrated into the language classroom. Furthermore, it was due to my collaboration with several of my university lecturers that I was introduced to this research field, which definitely increased my interest towards foreign language teaching and learning through the use of mobile apps.

The relevance of this topic is undeniable, since language learning is nowadays changing and developing at an unprecedented pace (Kelly et al., 2004). The increasing importance of technologies has changed the way languages are being learned and taught. The growing use of Information and Communication Technology (ICT) is one of the main examples of these changes (Brennan et al., 2014). Its impact is explained by the fact that ICT complements traditional ways of teaching, for it provides new opportunities for communication, more significant and useful feedback as well as opportunities to improve the quality of language input (Zhao, 2003). In addition, the integration of ICT in the area of teaching has given birth to Technology Enhanced Learning (TEL), which is implemented through the use of Virtual Learning Environments (VLE) such as Virtual Worlds (VWs), cloud computing, and others (Kirkwood & Price, 2014). All of these have in common that they have been praised by students and learners due to their ease of use and usefulness (Stantchev et al., 2014) as well as their social and creative nature, which help to increase learners' motivation and autonomy (Lorenzo et al., 2013). These features, together with the possibility of collaborative and interactive resources when Internet connection is available, make ICT suitable for language learning (Pinto-Llorente et al., 2016).

Nowadays, Mobile Learning (ML)[1] is particularly salient within ICT, as the use of mobile devices is widely spread across society (Chadha, 2015), allowing students to learn anytime and anywhere (Kukulska-Hulme & Shield, 2008). UNESCO (2013) underlines the importance of mobile learning on the basis that it helps to bridge the gap between formal and informal learning, causing seamless learning[2]. The various possibilities offered by portable devices are also significant regarding their contribution to learning processes: the

[1] Also known as "m-learning".
[2] "Seamless learning is defined as uninterrupted learning across different environments" (UNESCO, 2013).

easy way in which they can be carried around, the fact that they can be used to foster communication and collaboration, and the possibilities opened up by Internet resources and wireless connectivity (Kukulska-Hulme, 2005). Private companies are aware of how influential mobile learning is becoming, which explains how the purchase of its services and products reached 2,920 euros in 2010. It is estimated that this sum will rise by 2017, reaching 2,000 euros per year (Adkins, 2015). Amongst the most commonly used mobile devices are smartphones, tablets, laptops and PDAs (i.e. Personal Digital Agendas).

The focus of this Senior Thesis is on the use of smartphones and mobile applications (more commonly known as apps) to support language learning and teaching processes. In particular, the aim is to identify the tendencies revealed by recent publications on Mobile-Assisted Language Learning (MALL). As outlined by Chinnery (2006), in MALL environments, mobile devices have become instructional tools for language teaching. Nonetheless, despite its existence for more than twenty years, these are usually poorly integrated into language teaching curricula (Burston, 2014a). Consequently, the focus of this work will be on both the different types of learning supported by apps as well as the ways these offer to assess learners' learning process. This research will be done by following Open Science principles, providing the list of analysed publications, which will be publicly accessible.

The rest of the document is structured as follows: Section 3 contains a summary of the state of the art, whose aim is to establish the current state of MALL as a research field. More specifically, this section is divided into three main subsections: Section 3.1., which presents a comparison between Mobile-Assisted Language Learning (MALL) and Computer-Assisted Language Learning (CALL). In it, problems and challenges posed by MALL are also pointed out. The next subdivision, Section 3.2., discusses and defines the different types of learning supported by MALL by means of subdivisions. Section 3.3. describes different approaches to assessing in MALL. Finally, Section 3.4. introduces a paper classification. Secondly, Section 4 gives a more detailed explanation of the purpose of this work, putting forward the hypotheses that I intend to prove. Thirdly, the methodology followed to make the analysis is explained in Section 5. Afterwards, Section 6 shows the analysis that has been carried out to confirm the proposed hypotheses. Finally, Section 7 presents the conclusions drawn from the research study. These sections are followed by the acknowledgements, the references and the annex.

# 3. STATE OF THE ART

In the last 20 years, there has been a growing interest in using mobile devices to support language teaching and learning processes. This is shown by the increasing interest in the topic coming from teachers and researchers. Thus, publications related to MALL appear to be growing and maturing in recent years (Stockwell & Hubbard, 2013), making up to 600 publications between 1994 and 2014 (Burston, 2015).

Focusing on the topic of this work, the most remarkable papers are those published by Chinnery (2006), Burston (2013, 2014 & 2015), and Duman et al. (2015). In "Going to the MALL: Mobile Assisted Language Learning" (2006), Chinnery analyses publications on MALL and identifies the benefits and challenges posed by existing MALL applications. This study is followed by the annotated bibliography published by Burston in 2013, in which the author lists and sums up all publications on the subject published between 1994 and 2012, providing a historical background. In addition, in "Twenty years of MALL project implementation: A meta-analysis of learning outcomes" (2015), Burston carries out a Systematic Literature Review (SLR)[3] of the existing MALL publications between 1994 and 2012. The author aims to examine the outcomes of MALL implementation projects as well as to build a framework for the validation of MALL implementation projects. Some of the key criteria within Burston's framework are the following: the duration of the experiment carried out, the number of participants involved and the design shortcomings (e.g. failure to track actual usage, presence of uncontrolled variables, etc). Focusing on teaching and learning aspects, a previous study by the same author, entitled "MALL: the pedagogical challenges" (Burston, 2014b), reviews current pedagogical trends in MALL. This study aims to raise awareness about the fact that, however spread MALL may be, it still has to face many challenges. Finally, a very similar literature review to the present one is found in "Research trends in mobile assisted language learning from 2000 to 2012" (Duman et al., 2015), in which the authors identify the trends of studies published between 2000 and 2012.

[3] "A systematic literature review (often referred to as a systematic review) is a means of identifying, evaluating and interpreting all available research relevant to a particular research question, or topic area, or phenomenon of interest" (Kitchenham & Charters, 2007).

### 3.1. MALL vs CALL

Regarding the topic covered in this work, it is important to make a distinction between Mobile Assisted Language Learning (MALL) and Computer Assisted Language Learning (CALL). According to Kukulska-Hulme and Shield, MALL differs from CALL in "its use of personal, portable devices that enable new ways of learning, emphasizing continuity or spontaneity of access and interaction across different contexts of use" (2008). Moreover, MALL enables ubiquitous learning[4], which differentiates MALL from CALL and desktop computers. MALL is also defined as a reaction against "an interaction between an individual and a single device", encouraging an interaction between more individuals and groups using "network mobile computing devices" (Dryer et al., 1999). As a result, MALL is emphasised over CALL in recent publications. Focusing on the subject matter of this project, another advantage offered by MALL is that it only requires a simple server software offered by mobile devices and an app. On the contrary, many CALL implementations, such as Virtual Worlds (VWs), need a powerful server as well as computers to be used (Berns et al., 2015).

Despite the several advantages MALL offers (Kukulska-Hulme, 2008; Godwin-Jones, 2011), it also presents some difficulties and challenges when used for educational purposes (Stockwell & Hubbard, 2013). Firstly, those related to physical issues. Their small size together with "storage capacity, processor speed, battery life, and compatibility of devices" (Stockwell & Hubbard, 2013) are factors to be taken into account when using them within teaching and learning processes. Secondly, pedagogical issues also need to be taken into consideration. Activities which were carried out in traditional learning environments, prior to the existence of MALL, often find their way into mobile devices without improving or adding to teaching practices. Thus, activities are essentially the same ones that were carried out before, being the use of technologies the only difference. As opposed to that, technologies should enrich learning by offering new possibilities and opportunities, enhancing the process by exploring new ways of learning[5]. The authors also underline that learners' familiarity with mobile devices should not be taken for granted; instead, students should be provided with more guidance on how to use mobile devices for learning purposes. Lastly, psycho-social issues can also be spotted. Most students still use mobile

[4] Ubiquitous learning means that learning can happen anytime and anywhere.
[5] This is called Technology Enhanced Learning (TEL).

devices for personal purposes rather than for learning purposes, which in some cases might negatively affect learners' attitude towards MALL (Stockwell & Hubbard, 2013).

### 3.2. Learning through MALL

In traditional teaching and learning contexts, syllabuses[6] are crucial in order to organise the content of a lesson. The syllabus can be determined by different criteria, depending on learning objectives and students' needs. This has given rise to several learning approaches and syllabuses such as grammatical, functional-notional, situational, skill-based, and topic-based (Nunan, 1988). As it happens in traditional teaching, the goal and focus of MALL can also vary depending on different criteria. Thus, different learning and teaching approaches have arisen. Among those are, for instance, Form-Focused Learning and Project Based Learning. This way, the content of an app may be focused on grammar, vocabulary, specific skills or any other aspect of language learning.

In foreign language learning, vocabulary learning is considered to be one of the most important aspects, since it substantially contributes to the improvement of the four basic skills (i.e. listening, speaking, reading and writing) involved in language learning (Atasheneh & Naeimi, 2015). Thus, the wider learners' vocabulary is, the more they are able to understand and the better their production is (Ali et al., 2012). Moreover, there are many authors who argue that vocabulary should be emphasised over grammar in teaching contexts, particularly in earlier stages of language learning (Meara, 1995; Ali et al., 2012; Atasheneh & Naeimi, 2015). These views link with Wilkins' statement, "while without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (1972). Given its importance and the possibilities offered by these new tools, many MALL applications are focused on vocabulary (Hasegawa et al., 2015). In fact, CALL has proved itself to be one of the most suitable ways of learning vocabulary (Ali et al., 2012). Subsequently, as MALL has in many cases followed the path of CALL (Burston, 2014a), vocabulary is also expected to be very present in it.

[6] A specification of the contents and skills present in a course, including the order in which these are taught (Richards & Schmidt, 2010).

### 3.2.1. Individual vs Collaborative learning

MALL activities can be either individual or collaborative, which means that learners can work on their own or interact with others to jointly complete a given task. Even though MALL is expected to exploit the possibilities offered by the available devices, very few apps explore their real potential. As a result, individual learning is prioritised. A review of the literature shows that the vast majority of MALL activities use mobile devices to deliver content, encouraging teacher-to-learner communication, instead of supporting learner-to-learner communication (Kukulska-Hulme & Shield, 2008; Berns & Palomo-Duarte, 2015). Even though there are exceptions (2008), collaborative learning is generally left aside. Therefore, "very few activities support learner collaboration or communication" (Kukulska & Shield, 2007). In fact, being smartphones and apps the topic of this work, it is important to know that "few apps provide learners with opportunities to perform collaborative learning tasks by interacting and negotiating with other users in the target language" (Berns & Palomo-Duarte, 2015).

### 3.2.2. Types of learning supported by MALL

#### *3.2.2.1. Form-Focused Learning*[7]

The name of this type of learning comes from the term "form", which refers to "the function that a particular structure performs" (Laufer & Girsai, 2008). Therefore, learners' attention is mainly drawn to lexical items and grammar, which makes this approach be closely related to traditional ways of teaching. This kind of instruction can be isolated or integrated. That is to say, the focus on the form can be separated from or integrated into communicative activities (Lessard-Clouston, 2011). Examples of Form-Focused Learning are found in drills (i.e. activities with the purpose of practising sounds or sentence patterns, consisting of guided repetition or practice) and fill in the gap activities (i.e. learners are asked to complete a text that has missing words in order to practise a specific linguistic aspect).

[7] Also known as Form-Focused Instruction.

#### *3.2.2.2. Project-Based Learning*

As Markham explains (2011), in Project-Based Learning "students focus on a problem or challenge, work in teams to find a solution to the problem, and often exhibit their work to an adult audience at the end of the project". In other words, PBL involves learners acquiring new knowledge through practice. The role mobile devices play, in this case, is that of an advantage when producing a "high quality, collaborative project" (Markham, 2011).

#### *3.2.2.3. Problem-Based Learning*

According to O'Malley et al. (2005), Problem-Based Learning (PBL) is a method of instruction characterised by being collaborative and learner-directed. This method is based on group work, which revolves around the need of solving a problem (Bates, 2015). A further definition is given by Savery (2006):

> It is an instructional (and curricular) learner-centred approach that empowers learners to conduct research, integrate theory and practice, and apply knowledge and skills to develop a viable solution to a defined problem.

In order to have a full understanding of this concept, a comparison with the previous one is needed. Both of them share the same prime goal: solving a problem. However, Problem-Based Learning tends to give freedom to learners when trying to solve the problem, whereas Project-Based Learning is more oriented (Savery, 2006).

#### *3.2.2.4. Task-Based Learning*

The basic unit for Task-Based Language Learning is a task, which is defined by Ellis (2009) as an activity fulfilling the following aspects:

> 1. The primary focus should be on 'meaning' (by which is meant that learners should be mainly concerned with processing the semantic and pragmatic meaning of utterances).
> 2. There should be some kind of 'gap' (i.e. a need to convey information, to express an opinion or to infer meaning).
> 3. Learners should largely have to rely on their own resources (linguistic and non-linguistic) in order to complete the activity.
> 4. There is a clearly defined outcome other than the use of language (i.e. the language serves as the means for achieving the outcome, not as an end in its own right).

This concept is narrowed by Van den Branden (2006) as "an activity in which a person engages in order to obtain an objective, and which necessitates the use of language". Taking this definition into account, a task can be either focused or unfocused. The aim of the focused task is to practise "some specific linguistic feature" (Ellis, 2009), whereas the unfocused task aims to provide learners with the opportunity to use language for communicative purposes. In focused tasks, learners are not told what linguistic aspects they should use in order to fulfill the four criteria outlined by Ellis. Another feature pointed out by the author is that tasks can be input-providing (i.e. involving listening or reading skills) or output-prompting (i.e. speaking or writing). Because of this, a task might be integrative, engaging learners in using any of the four skills (Ellis, 2009).

#### *3.2.2.5. Game-Based Learning vs Gamification*

Game-Based Learning (GBL) involves using mobile learning games. Thus, the focus is not on the content itself, but on providing learners with situations that allow them to learn through activities (Lilly & Warnes, 2009). This is done through the use of serious games, which combine both fun and entertainment with educational purposes (Bellotti et al., 2013). In spite of some restrictions found in the use of games (e.g. small screen size of smartphones and those ones presented by games themselves), the relevance of Game-Based Learning is found in its attractive way of presenting learning contents.

On the other hand, gamification is "the use of game design elements in non-game contexts" (Deterding et al., 2011). Thus, this term is not as related to games as it is with marketing and motivation. The goal of using game dynamics is to increase learners' participation and to make learning more enjoyable (Cortizo-Pérez et al., 2011; Marín, 2015). Focusing on the subject of this paper, app gamification would mean introducing game features in other kinds of apps to increase learners' motivation and improve their learning outcomes (Hamari et al., 2014; Palomo-Duarte et al., 2016). In recent years, gamification has become a popular concept, and publications seem to show positive outcomes resulting from its application in learning contexts (Hamari et al., 2014).

### 3.3. Assessment in MALL

Assessment is a feature present in every language learning and teaching environment, and MALL is not an exception, for teachers and researchers are expected to measure learning outcomes. Regarding this matter, it is always important to establish fair criteria and comprehensive methods for assessing students' learning performance (European Commission, 2013). The importance of assessment is such that, when properly given, it can be a determining factor in the improvement of language learning (Huhta, 2007). In particular, formative assessment shows considerable educational potential when compared to summative assessment, since it is "implemented and present throughout the entire learning process and continuously monitors progress and failures" (Bellotti et al., 2013). Thus, formative assessment aims at providing the learners with useful feedback, which helps them notice their own abilities and difficulties. On the contrary, summative assessment simply means giving learners a mark for quantifying or rewarding purposes (University of Exeter).

Another relevant feature of assessment is that it can vary depending on its source, including self-assessment, peer-assessment, teacher assessment, external expert assessment and Computer-Aided Assessment (CAA). Regarding the use of technologies in these processes, e-assessment[8] offers several advantages such as monitoring, automated data processing and immediate, personalised feedback (Rodríguez-Gómez & Ibarra-Sáiz, 2015). In the particular case of MALL, the interesting part of assessment is that there are new techniques which allow different ways of assessing both learners' performance as well as learning outcomes (UNESCO, 2013). These can be either external or internal, depending on whether it is done outside or inside the app. The main techniques are listed and defined below.

#### 3.3.1. External Assessment

##### *3.3.1.1. Pre-test and Post-test Evaluation*

One of the most common approaches to measuring the outcomes of MALL activities is the use of pre- and post-tests in order to evaluate their impact on student's learning. In other words, the aim is to measure learners' knowledge before and after using a specific MALL

[8] E-assessment involves the use of ICT in the process of assessing learners (Ridgway et al., 2004).

activity, thus providing quantitative data. The problem that arises when following this procedure is the lack of information regarding the students' learning process itself, since it does not allow neither to measure nor to analyse students' progress while using a specific learning tool. This explains why other techniques, as the ones listed here, need to be used to obtain further details on the learning process itself (Berns et al., 2015).

#### *3.3.1.2. Questionnaires*

Questionnaires can be designed in order to obtain qualitative data by analysing learners' attitude towards MALL before or after putting it into practice (Li & Li, 2011). Additionally, they can be designed to gather useful feedback on students' particular learning needs, providing valuable information for the design of future MALL materials (Bayyurt et al., 2014). However, questionnaires offer both advantages as well as disadvantages. While there are advantages such as the familiarity that participants usually have with this format, there are also some disadvantages such as the lack of confidentiality when filling in questionnaires. This can affect responses favourably or unfavourably (Walonick, 1993).

#### *3.3.1.3. Focus-group interviews*

A focus-group interview is a technique in which participants are selected because of being close to the topic that constitutes the focus of the interview (Rabiee, 2004). The main feature of focus-group interviews is that they require planning, since it is important that participants are willing to engage in the discussion (Rabiee, 2004). The number of participants, the questions that are going to be asked and the help of a skilled moderator are fundamental when carrying out focus-group interviews (Krueger, 2002). This technique presents several advantages such as the possibility of direct interaction between teachers/researchers and learners as well as more detailed feedback on the part of the participants as opposed to other methods such as questionnaires.

However, as Debbie Ho points out (2006), some negative aspects can be spotted regarding its "validity and reliability as far as data collection is concerned both in terms of procedure and the data itself". Firstly, participants may not be equally engaged in the discussion or some contributions may not be as useful as some others. Secondly, the

teachers'/researchers' neutrality might be difficult to maintain, since moderators are usually close to the discussion topic and they have their own established opinions. Thirdly, the arguments given by participants may not be as scientific as needed, since they are students sharing their personal insights. Moreover, discussions that spark from focus group interviews may be too controlled by the moderator for them to be natural and real (Ho, 2006).

### 3.3.2. Internal Assessment

#### *3.3.2.1. Achieving goals and completing levels*

As anticipated by Game-Based Learning and Gamification, one of the ways of assessing MALL is by setting goals and observing if learners are capable of reaching them. With regard to these goals, several types can be identified: points, achievements/badges, levels, clear goals, and challenges. All these features contribute positively to students' motivation towards learning (Hamari et al., 2014). This particular kind of assessment is known as completion assessment, which tries to ensure that learners complete the game. The design of goals and levels must always maintain the balance between motivation and learning. Completion assessment can also be complemented with in-process assessment, which "examines how, when, and why [players] made their choices" (Bellotti et al., 2013). This is at the same time related to stealth assessment, which takes into account "the players' interactions with the game itself" and contrasts those interactions with "a typically singular outcome of an activity" (Shute & Ventura, 2013).

#### *3.3.2.2. Data-Mining vs Learning Analytics*

Data-Mining is defined as a process of discovering and extracting patterns from large amounts of data (Jiawei & Kamber, 2006; Han et al., 2012). In the case of MALL, students' learning processes form the data to be analysed, and the type of data mining tasks carried out are descriptive, as the aim is "to characterize properties of the data in a target data set" (Jiawei & Kamber, 2006).

On the other hand, Learning Analytics is defined by The Society for Learning Analytics Research as "the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments

in which it occurs" (Siemens & Baker, 2012). The focus of this analysis is therefore on the learners' academic performance and their learning process (Aljohani & Davis, 2012).

Concerning the use of apps, both of these techniques arise from the recollection of data that logs[9] provide. Although both techniques appear to be similar, there are some differences between them regarding their methods (Shoukry et al, 2014; Siemens & Baker, 2012). While Data-Mining tends to classify and analyse results based on the relationship between them, Learning Analytics treats each one as a whole (Siemens & Baker, 2012).

### 3.4. Types of Research Papers

As the focus of this Senior Thesis is on the analysis of existing papers on the use of apps for foreign language learning and teaching, an explanation on how papers can be classified is needed. For the purpose of this analysis, the classification proposed by Wieringa et al. (2006) will be applied. According to this distribution, there are 6 different types of research papers:

- **Evaluation research**: these papers present the investigation of a problem or the implementation of an already existing technique. They also include information about what has been learned from the implementation carried out. Applying the concept of evaluation research to this work, the papers that belong to this category present the use of an already existing app in order to evaluate the app as a whole or a particular aspect of it.

- **Validation research**: these papers put into practice a proposal that has not been implemented yet. They are similar to those belonging to the previous category, since they are both scientific experiments. Nonetheless, they differ from each other due to the fact that the technique on which validation research focuses is new. For the sake of this work, a validation research is to be taken as a paper that describes a new app or a new way of putting a general purpose app into practice and then implements it to validate its usage.

- **Proposal of solution**: these papers propose a new technique (i.e. app), but one that is not yet fully developed. A variation of these is to improve another technique significantly. A "proof-of-concept" may be included, but it is not necessary.

[9] Logs are information files that are recorded by an app. These files can include information about user and system actions (Technopedia).

- **Philosophical papers**: papers in which the author provides a brand new conceptual framework to describe a solution technique.

- **Opinion papers**: as opposed to the previous ones, these papers provide a personal opinion about what the author thinks should be done rather than presenting research results, design information or conceptual frameworks.

- **Personal experience papers**: a description of a personal experience.

## 4. PURPOSE AND HYPOTHESES

The aim of this work is to analyse the existing corpus of literature and the state of research on the use of apps and smartphones in foreign language learning. This will reveal tendencies in the way languages are currently being taught through apps.

Through this analysis I aim to confirm two hypotheses:

H1: The use of apps in foreign language teaching and learning is increasing.

H2: The type of learning supported by most apps is not very different from that of traditional teaching environments.

From a pedagogical point of view, language learning is still based on individual learning and Form-Focused Instruction. Thus, even though the integration of new tools has meant a development for foreign language learning and teaching processes, the favoured learning approach has not changed as much.

## 5. METHODOLOGY

In order to find evidence to support both hypotheses, a Systematic Literature Review (SLR) will be conducted, which is a study of publications on a specific topic, carried out in order to answer one or more research questions established beforehand. This review will follow Kitchenham's principles for undertaking SLR (Kitchenham & Charters, 2007). These principles were first developed for software engineering, but they can be adapted to any kind of SLR. Kitchenham's methodology proposes different steps that should be followed,

starting with a justification of the need of the SLR, which has already been done. After that, research questions need to be proposed to guide the process of reviewing. As the goal of this work is to identify the tendencies displayed on publications about the use of apps and smartphones in foreign language teaching and learning, the following research questions are posed:

R.Q.1: What kind of publications deal with the use of apps in foreign language teaching and learning processes?
R.Q. 2: What type of apps are described?
R.Q. 3: What type of learning is supported by the analysed apps?
R.Q. 4: What kind of assessment is carried out to measure the app's impact on the students' learning process?

Answering R.Q.1 (*What kind of publications deal with the use of apps in foreign language teaching and learning processes?*) will provide information about the year and the type of publication (i.e. is it a book chapter, a paper in a conference proceeding or in a journal? What kind of research paper is it according to the classification established?). In addition to that, the answer to R.Q.2 (*What type of apps are described?*) will establish the target group of the app and its linguistic level. It also aims to determine if the app described is a specific app (i.e. one that is specially designed for foreign language learning), an instant messaging app, a social network app or another general purpose app. Taking R.Q.2 as a starting point, R.Q.3 (*What type of learning is supported by the analysed apps?*) proposes a further analysis of the apps, according to those types of learning defined in Section 3.2. Both the focus of the content, as well as the way of presenting it, are crucial here. Finally, R.Q.4 (*What kind of assessment is carried out to measure learning process?*) will provide information about the different types of assessment supported by the analysed apps (see Section 3.3.). The answer will include data on assessment techniques, on its source (e.g. teacher assessment or peer-assessment) and on its goal (i.e. is it formative or summative?).

The next step is to determine and follow a search strategy, which requires establishing first the different digital libraries and journals to be consulted in order to identify the most relevant publications on this research topic. Therefore, the bibliography has been taken from ten different databases (*Web of Science, IEEE Digital Library, Springer, ACM Digital Library, ScienceDirect, DSpace, The Open University, IGI-Global, Taylor & Francis* and

*Online-Journals.org*) and from six peer-reviewed journals (*CALL, Language Learning & Technology, RECALL, CALICO, JATLCALL,* and *English Language Teaching*). In addition, the scope of the SLR has been narrowed to cover the years between 2012 and 2015 with the aim of adding new insights to Burston's study (2015) as well as the literature review by Duman et al. (2015). All searches were done in January 2016 to cover the targeted years completely. To limit the results as much as possible, the search terms selected were "MALL app smartphone 'language learning'". Searches have been slightly different in the case of those databases and journals that showed no results when using these terms. Thus, the search terms changed to "MALL 'language learning'", "app 'language learning'" and "smartphone 'language learning'". When possible, searches have been restricted to abstracts and keywords.

During the search process, some problems raised that required, for instance, contacting with some journals (e.g. *CALICO*) because of a failure in their browser, which showed no results regardless of the words entered when searching. Moreover, as some abstracts and keywords did not provide the necessary information, the full version of the texts were needed in many cases. However, not all the publications were freely available, so getting in touch with some authors has also been part of this search process. In some other cases, as the authors could not be reached, the articles were sought by means of an inter-library loan with the help of the library of the University of Cádiz.

*Table I* shows the sources, the search terms and the search scope established, as well as the results, which altogether make up a total of 254 publications. Apart from being recorded in this table, the results have been stored on Mendeley[10] and on FigShare[11]. These have been freely available since the analysis was carried out to allow other researchers to verify or even update the obtained results.

[10] Mendeley is a reference manager. It gives users the possibility of creating public groups that allow references to be freely accessible. The link to the group that contains the reference list for the results is the following http://mnd.ly/1WCB3KC

[11] FigShare is an online repository that allows users to share their research findings to make them available and citable for other users. The link to the document with the results is the following https://dx.doi.org/10.6084/m9.figshare.3384352.v1

Table I. Searches and results.

| Source | Search terms | Search scope | Results |
|---|---|---|---|
| Web of Science | "language learning" + MALL app smartphone | Topic | 4 |
| IEEE Digital Library | "language learning" + MALL / + app / + smartphone | Metadata | 19 |
| Springer | "language learning" + MALL app smartphone | All fields (computer science + education and language) | 13 |
| ACM Digital Library | "language learning" + MALL app smartphone | Author key word and abstract | 99 |
| ScienceDirect | "language learning" + MALL app smartphone | All fields | 12 |
| DSpace | "language learning" + MALL app smartphone | All fields | 1 |
| The Open University | "language learning" + MALL / + app / + smartphone | All fields | 14 |
| IGI-Global | "language learning" + MALL app smartphone | All fields | 24 |
| Taylor & Francis | "language learning" + MALL / + app / + smartphone | Abstract | 11 |
| Online-Journals.org | "language learning" + MALL / + app / + smartphone | All fields | 7 |
| CALL | "language learning" + MALL app smartphone | All fields | 2 |
| Language Learning & Technology | "language learning" + MALL app smartphone | All fields | 10 |
| RECALL | "language learning" + MALL | Abstract | 2 |
| CALICO | "language learning" + MALL / + app / + smartphone | All fields | 30 |
| JATLCALL | "language learning" + MALL app smartphone | All fields | 3 |
| English Language Teaching | "language learning" + MALL app smartphone | All fields | 3 |

Once the results were obtained, the procedure for determining if the papers were useful for the purpose of the present study was reading the title, abstract and keywords or, in some cases, even the complete text. The two main criteria for rejecting papers were “off topic” and “duplicated”. Those papers labelled as “off topic” did not cover the chosen topic, whereas those labelled as “duplicated” contained the same information that was already provided by another paper, published by the same author. Among those discarded because of being “off topic”, there were many that discussed MALL and apps but their focus was not on the description of the app or its implementation. These ranged from perception studies to overviews on the topic. Besides, as the papers were taken from several databases and journals, repeated papers were commonly found. Consequently, the results reduced from 254 to 35 publications after following all these steps. The 35 papers are listed in a table in *Annex 1*, but they have also been made public by uploading them to FigShare[12]. This tool, together with Mendeley, enable this work to be as straightforward as possible.

A last remark to be made about the procedure followed is that valid publications which presented the use or description of apps for tablets, iPads and iPods were also included

[12] https://dx.doi.org/10.6084/m9.figshare.3383356.v1

among the 35 valid papers. The reason for this is that these publications provide useful information to the present Systematic Literature Review, but also because of the existing convergence between smartphones and the other tools.

## 6. ANALYSIS

The remaining 35 valid publications are exhaustively examined in this section. The results, together with graphs and charts that help to illustrate them, are exposed and explained. The steps that will be followed are those mentioned in Section 5, where Research Questions have been posed.

The first step in proving the hypotheses is to answer Research Question 1. To do so, the starting point is to classify the valid papers according to the year of their publication. *Figure 1* shows the annual distribution of the chosen papers to analyse, which is highly revealing. Although 2012 and 2013 are equalised, from 2013 to 2014 there is a modest growth. Papers published in 2015 display a further rise. Thus, the time span chosen for this analysis demonstrates how MALL and the use of apps for language teaching and learning is gradually increasing.

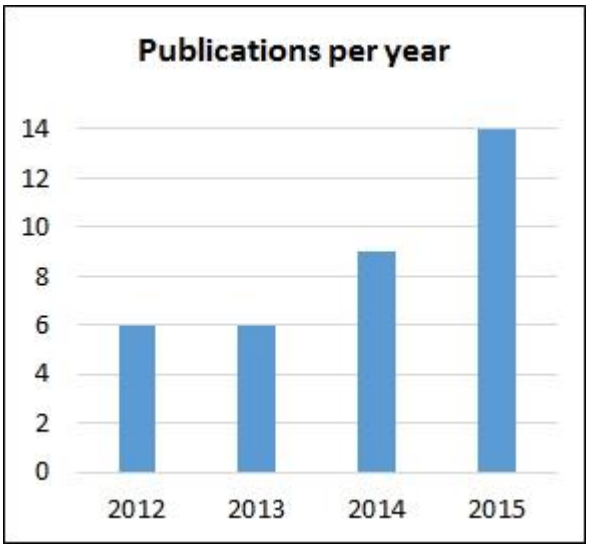


**Figure 1.** Number of publications per year.

*Figure 2* shows the different types of publications spotted among those that were accepted as valid. It is noteworthy that only 2 of a total of 35 papers were published as book chapters. The rest of them are papers included in journals (17) or in conferences (16). This suggests that this topic is not so common in books, but rather in journals or conferences, which are more accessible to a wider audience of experts.

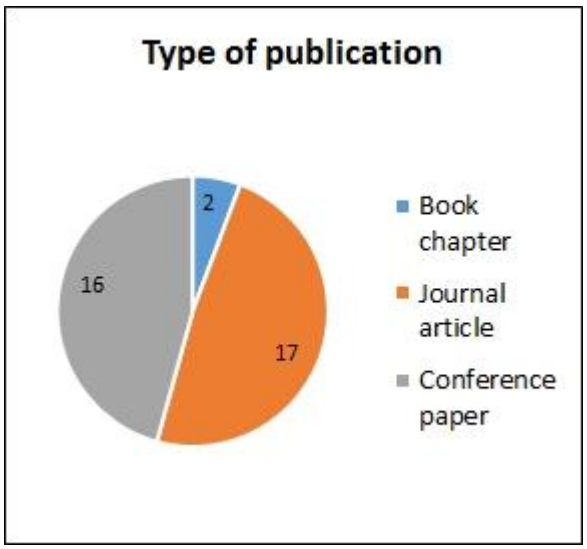


**Figure 2.** Type of publication.

A further analysis of the total publications shows a division among them, based on the nature of the paper. That is, they can be divided into the specific types of papers described in Section 3.4. In *Figure 3* papers are classified, showing that the types of papers found are only three: validation research, evaluation research and proposal of solution.

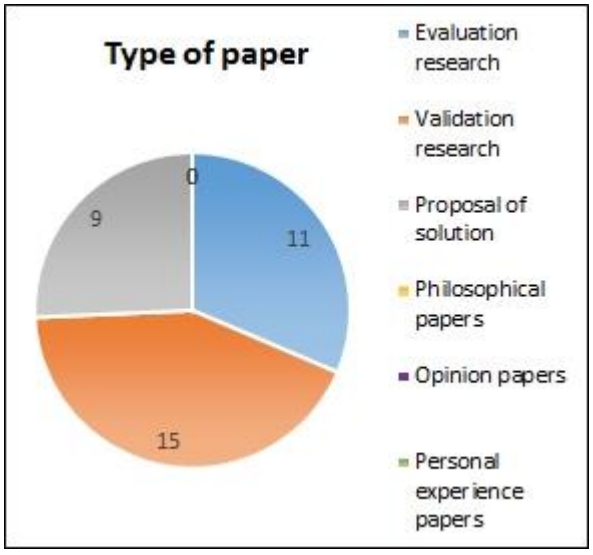


**Figure 3.** Type of paper.

The results, therefore, present a significant difference in the amount of papers containing implementations (i.e. validation and evaluation research) and those which do not (i.e. proposal of solution). It is crucial to make this separation beforehand since they will not provide the same kind of information.

Taking into account this first division of the selected papers, the focus is now on the apps themselves and, thus, on Research Question 2. Firstly, they can be classified according to their particular characteristics. *Figure 4* illustrates how the apps described are of four different kinds: apps for specific purposes, instant messaging, general-purpose or social networking apps.

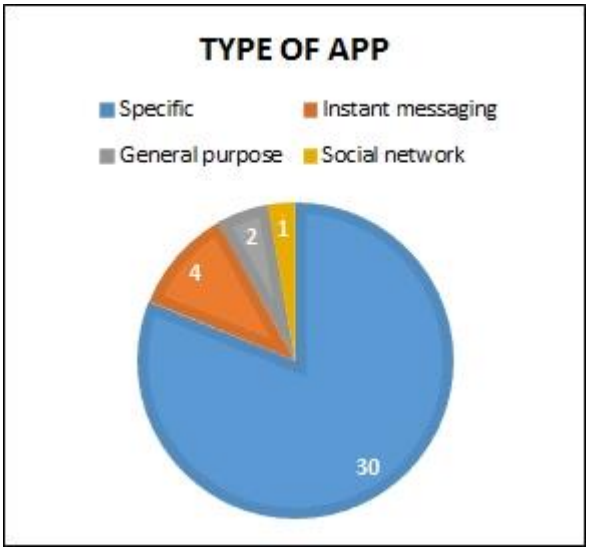


**Figure 4.** Types of apps.

Nonetheless, it is important to bear in mind that publications describing the implementation of a MALL activity may combine the use of two or more apps at the same time. As a matter of fact, there is a case of that in one of the chosen papers, where the implementation carried out includes both a specific app and a social network (Read & Kukulska-Hulme, 2015), which are used simultaneously. There is also a case where two possibilities are offered to the students: the use of a specific app or an instant messaging one (Shrestha et al., 2015).

A closer look at *Figure 4* and the papers involved reveals how publications that only describe apps or activities without putting them into practise focus mainly on specific apps. This happens because these publications generally present a new app developed by the authors. On the contrary, in those cases where apps are actually put into practise, a wider variety is found. However, specific apps are still the most popular ones among researchers.

Regarding those apps that are not specific, a further analysis of them requires specifying the names of the apps. Firstly, those apps characterised by the possibility of instant messaging are three: LINE, Skype and FaceTime. In particular, LINE is mentioned in two different publications. Secondly, iTunes U, a general purpose app, is also adapted to teaching environments. Finally, Facebook is the social network that is part of a MALL implementation. All these apps are very popular and used worldwide. As a matter of fact, many of them are among the most downloaded apps in the market (Google Play, 2016; Apple, 2016). This proves that MALL is definitely breaking the barriers between formal and informal learning, as put forward by several authors (Kukulska-Hulme & Shield, 2008; UNESCO, 2013). The good results of these studies also help to support this statement. Despite the fact that learners usually consider this kind of apps as tools to be used outside class, they generally show a positive attitude to seamless learning.

Regardless of their division into those papers including implementations and those which do not, both types propose activities involving apps, and many of them were developed for a specific target group and linguistic level. Among the publications that indicate the target group, university students are the most frequent ones, with a total sum of 12 cases. Examples of other target groups are children, immigrants and high school students, but most of the papers do not provide this information. On the other hand, *Figure 5* illustrates the number of papers aimed at each level.

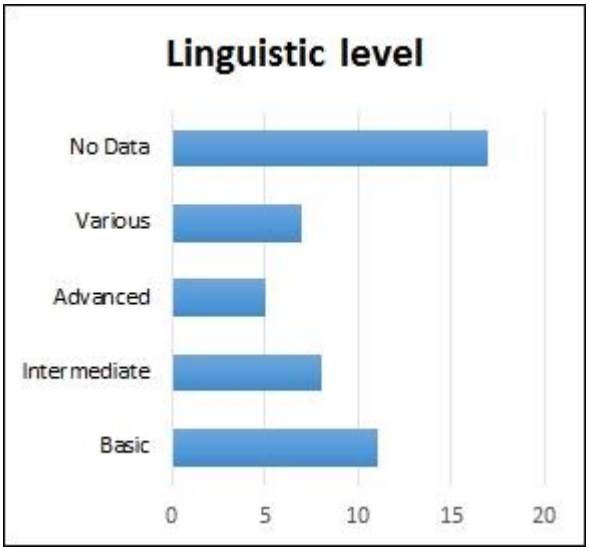


**Figure 5.** Linguistic level of the apps/activities.

Those publications under the label "no data" did not specify the level of the app or the activity proposed. Although this is the case for most of them, it is possible to focus on those publications which give this information. The data suggest that lower levels are predominant, followed by intermediate levels and then advanced ones. It seems that the number of apps that can be used diminishes as the linguistic level increases. A high number of apps (7) can be used by learners from different linguistic levels.

Looking at the type of learning supported by these apps, the first aspect to be analysed in order to answer Research Question 3 is the language they allow learners to practise. *Figure 6* illustrates the number of papers and the different languages that those papers propose as the language to be learned.

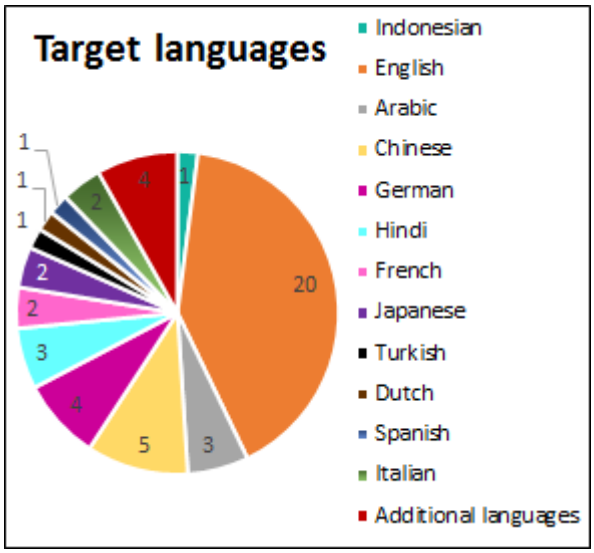


**Figure 6.** Range of languages used in apps and MALL.

As some apps offer the possibility of choosing a language among many others, I have decided to add an "additional languages" label, specifying only the ones that were mentioned in the text as examples or the most common ones. As the chart shows, this is the case for 4 papers, which do not specify the particular languages to be practised or which offer too many possibilities to include them all. Although there is a great variety of languages that can be learned or practised, English is by far the most popular foreign language in MALL activities using apps. The fact that English vastly outnumbers the rest of languages is clearly seen in the difference between Chinese, the next most spotted language, and English: whereas 20 apps involve the use of English, only 5 papers involve

Chinese. Among the other languages that are available, German, Hindi, Arabic, Japanese, French, Italian, Indonesian, Turkish, Dutch and Spanish are found.

With regard to the type of learning supported by the apps, the focus of the content is also crucial. This analysis is based on what the authors explain to be the focus of the apps and the MALL activities presented. *Figure 7* lists the different linguistic aspects that these apps work with, providing the number of apps that enable learners to put them into practice.

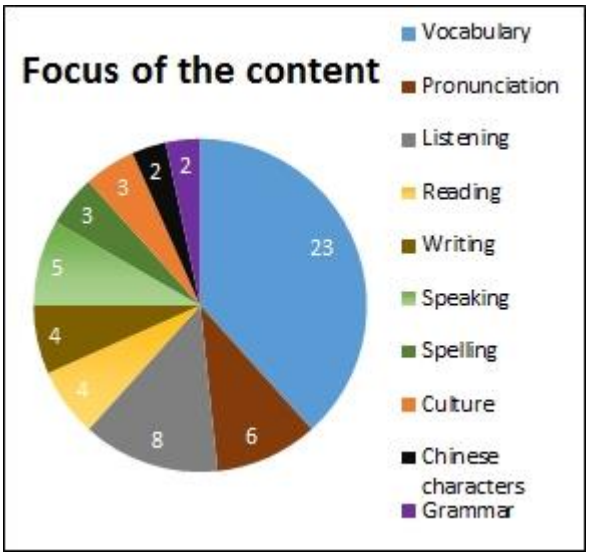


**Figure 7.** Focus of the content.

This way, the different learning targets of the apps are 10: vocabulary, pronunciation, listening, reading, writing, speaking, spelling, culture, Chinese characters and grammar. However, vocabulary is prioritised among all of those, reaching a total of 23 papers that focus on it. As it happened with the target languages, here there is once again a huge gap between vocabulary and the next linguistic aspect given priority to. A sum of 15 papers divides vocabulary from listening, which makes it clear that vocabulary is definitely considered to be essential for language learning. On the contrary, grammar and Chinese characters are the least practised language aspects.

Another aspect to be taken into consideration regarding these apps and their usage is the possibility of individual or collaborative learning. The 35 chosen papers demonstrate how individual learning is most of the times emphasised over collaborative learning. As *Figure 8* points out, the number of individual MALL activities is greater, making up to 31 cases where individual learning is found. Among these 31 cases, there are 9 apps that also offer the possibility of collaborative learning, either as something complementary or as a simple

possibility that can be removed. There are 4 other apps that are described as encouraging collaborative learning on its own.


**Figure 8.** Individual vs. Collaborative Learning.

The most striking part of these results is that 3 of the 4 papers that proposed instant messaging apps, which one would expect to be used collaboratively, do not promote collaborative learning. Instead, contents are exchanged between teachers and learners. That is, communication does not even take place between teachers and learners, since these apps are only used to send instructions or feedback from the teacher and completed assignments in the case of the students (Shih et al., 2013; Shih et al., 2014). In addition, there is also a case where the instant messaging app is used to communicate with an interactive voice response system instead of a person. Students answer questions that were previously recorded. Collaborative learning only comes into play after this part, when students make their answers available to other students by using another tool (Shrestha et al., 2015).

Considering the different types of learning defined in Section 3.2.2., *Figure 9* shows the results after distributing the papers accordingly. In the process of classifying papers this way, the category "Others/Mixed types" had to be added, since some apps were impossible to classify under any of the existing ones. There are, however, only two cases of apps in which additional types of learning were combined into one.

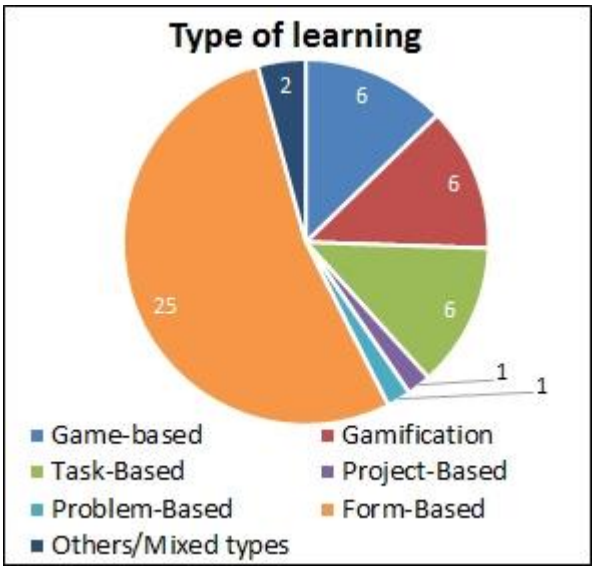


**Figure 9.** Type of learning.

Leaving those aside, another important aspect to mention is that there are 11 papers which describe cases where more than one type of learning is combined. Focusing on the results, most of the apps prioritise Form-Based Instruction over the rest of the types. It is also interesting to notice that Game-Based Learning, Gamification and Task-Based Learning show themselves to be used in 6 cases each. The resulting gap between Form-Based Learning and those three types is of 19 papers, which is a significant number. However, it is remarkable that 5 of the 6 apps that include gamification combine it with Form-Focused Learning. Finally, Problem- and Project-Based Learning are only used once each, appearing as the least used learning approaches.

It is crucial to bear in mind that the apps previously classified as practising grammar were those which did it explicitly. However, there are apps here included in Form-Based Learning that present grammatical aspects implicitly. An example of that is "Jodo: A Tool for Foreigners to Build and Speak Hindi Sentences" (Salinkar & Joshi, 2015) in which the authors specify that a grammatical approach is present in their listening and speaking activities.

Changing the focus towards Research Question 4, attention is drawn towards the measurement of the app's impact on learners and their learning progress. Thus, the first classification is to be made according to internal and external assessment. Here, only those apps that propose some kind of assessment can be analysed. Firstly, regarding both specific types of assessment, all the techniques defined in Section 3.3. are spotted in the papers. In

many cases, these techniques are used simultaneously to make of the assessment a more complete process. In the particular case of internal assessment, the obtained results are represented in *Figure 10*.

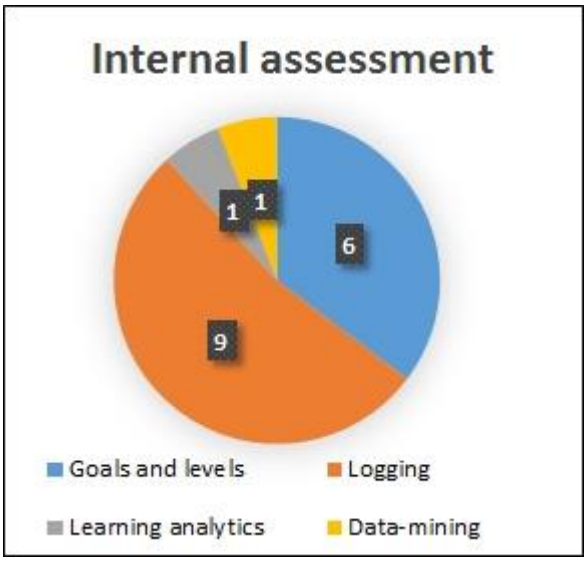


**Figure 10.** Internal assessment.

The use of records on students' logs outnumbers the rest of techniques. As pointed out in Section 3.3.2.2., students' logs provide data on how many times the student has interacted with the app, which allow teachers and researchers to apply learning analytics or data-mining techniques afterwards. However, the analysed papers classified in *Figure 10* show that student logs are taken into account but not with the purpose of using neither learning analytics nor data-mining. Nevertheless, some papers do apply these two techniques, but they appear only in one paper each. Another common method of assessment is related to Game-Based Learning and Gamification: goals and levels. These are found in 6 of the 35 analysed papers, in which coins, points and/or levels are introduced into the apps' mechanics.

Regarding external assessment, *Figure 11* shows that the most common way of evaluating the apps' impact on students' learning outcomes is through questionnaires. The second most frequent technique is the use of pre- and post-tests, which is closely followed by the use of interviews. These interviews are most of the times individual rather than focus-group interviews. Finally, there are 5 publications that only use post-tests instead of using both pre- and post-tests. An important remark to be made, as explained in Section 3.3.1.1., is that pre- and post-tests usually need to be complemented by any of the other techniques in order

to give a more complete account of the learner's progress. This analysis shows that 7 of the 12 papers which make use of pre- and post-tests also use other methods to achieve a more sensible account, whereas only 5 of them do not follow this train of thought. Concerning the ones that only use post-tests, all of the 5 papers complete the assessment with other techniques.

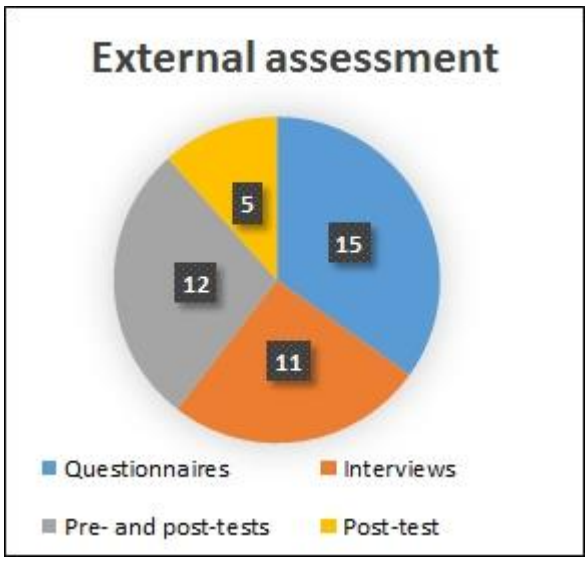


**Figure 11.** External assessment.

The following step is to analyse where the assessment comes from. The different possibilities given in Section 3.3. are all found in the papers, which means that all self-assessment, peer-assessment, teacher assessment, expert assessment and Computer-Aided Assessment (CAA) are spotted. Once again, many of these might be combined in a single paper. As a matter of fact, there are 14 cases in which different kinds of assessment are mixed. Either way, the most common kind is teacher assessment, which is present in 26 publications. Interestingly, the 14 cases of combinations between types of assessment correspond to these 26, and they are mostly complemented by CAA (10). Teacher assessment is followed by CAA, which is employed by 14 apps. These apps assess learners automatically, without the need of any intermediary. The rest of possibilities are less employed, as seen in *Figure 12*. Self-assessment, peer-assessment and expert assessment are hardly ever used. In the case of expert assessment, the expert only assesses the design of the app.

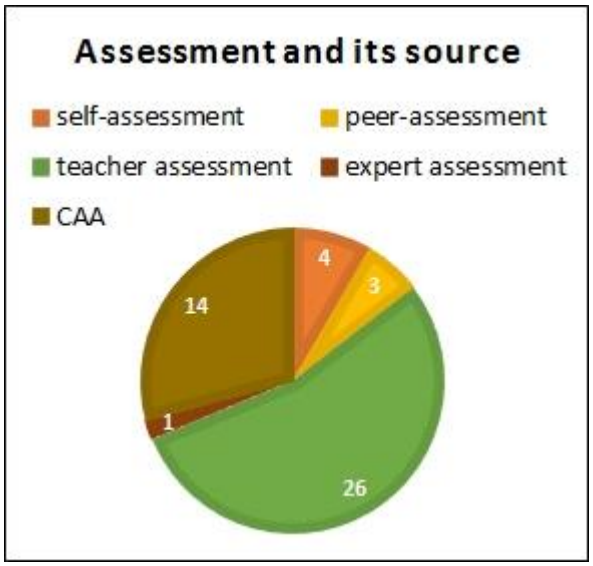


**Figure 12.** Assessment and its source.

The final step is to examine the assessment that is given to learners to find out whether it is formative or summative. Unlike the two previous steps, the papers analysed here are the ones that measure the learning process, not the app's impact. Focusing now on the valid papers, the results reveal that the use of both formative and summative assessment is balanced, since they appear 15 times each.

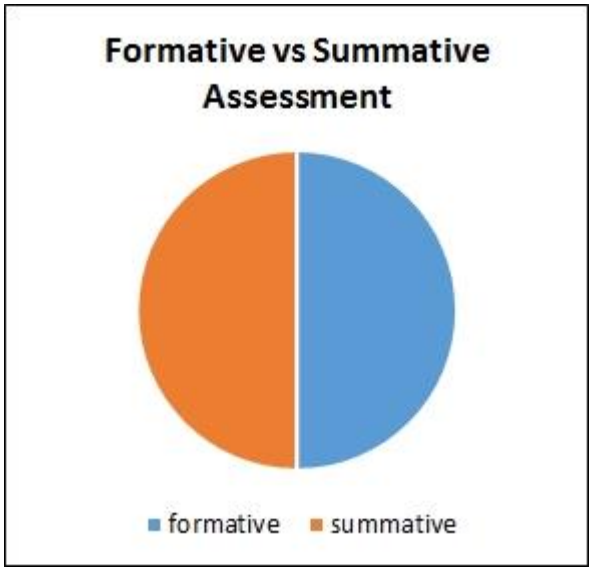


**Figure 13.** Formative vs summative assessment.

# 7. CONCLUSIONS

The aim of this Senior Thesis was to prove the two hypotheses stated in Section 4 (*H1: The use of apps in foreign language teaching and learning is increasing. H2: The type of learning supported by most apps is not very different from that of traditional teaching environments*). As a result of the Systematic Literature Review that has been carried out, it has been proved that both hypotheses do in fact occur. More specifically, the first hypothesis has been confirmed from the very beginning of the quantitative analysis, since publications on this topic have increased as time went on. This means that this research topic is gaining importance. From these results, future growth can be expected.

Regarding the second hypothesis, the results of the qualitative analysis show that the use of apps in foreign language teaching and learning has not meant much of an advance as regards pedagogical aspects. As it happened in traditional ways of teaching, the focus is on individual learning through Form-Based Instruction. These results coincide with those described in Burston's analysis (2014b):

> Since 2007, the emphasis in MALL has continued to be on content delivery within an implicitly behaviorist, teacher-centered framework (Burston, 2014[a]). Text-based tutorial applications involving drill and repetition of the type advocated by B.F. Skinner (1957) continue to be the norm. The learning of vocabulary and grammar has figured prominently. So, too, have simple true/false/multiple choice quizzes.

Even though not every single app of the ones analysed share the same features, the majority of them follow the model that Burston describes in his paper (2014b). The predominance of vocabulary, Individual and Form-Based Learning over the wide variety of possibilities which could be offered by apps is to be underlined. Moreover, even the emphasis given to teacher assessment can contribute to this conclusion. This leads to the conclusion that the potential offered by mobile devices is still to be exploited.

In addition to the confirmation of the two hypotheses, the other main goal of this study was to show the tendencies revealed by the analysis of the 35 publications. These tendencies have been pinpointed in the analysis, but it is interesting to discuss the results obtained. Firstly, regarding the types of publication that deal with this topic, findings show that the majority of papers were published as part of journals or conferences. This seems to imply that the topic is better welcomed by a specific audience where experts on the subject are

present. Furthermore, the fact that validation and evaluation research papers are the most common ones show how the interest lies in the testing of the apps and activities proposed.

The fact that English appears to be more popular than other languages in this research field can be explained. English has become an international language, which is not only spoken by native speakers in a single cultural environment, but used globally for practical purposes (McKay, 2003). English has also turned into a lingua franca, which enables people who do not share the same language to communicate (Conrad & Mauranen, 2003).

Linking these tendencies with the hypotheses, the results do not only share the need of taking advantage of the endless possibilities offered by mobile devices and, especially, apps, but also the need of developing more tools for higher linguistic levels. Besides, internal assessment methods are apparently taken over by external assessment, which again suggests that the possibilities offered by apps are overlooked. Concerning assessment, the analysis shows that learning analytics and data-mining are still to develop and grow as valid techniques, as pointed out by Palomo-Duarte et al. (2016).

On a more positive note, what the findings also show is that Gamification and Game-Based Learning, which are fairly new techniques, are being increasingly used. The amount of papers presenting the use of either of them is higher in 2015. Moreover, the fact that both formative and summative assessment are balanced is a positive result, especially taking into account that formative assessment is higher in the case of papers published in 2015.

In conclusion, the Systematic Literature Review has shown that MALL has in fact gained more importance in recent years, but also that it still needs to develop and face several challenges. Most of these challenges are especially related to teaching and learning issues. In this sense, it would be interesting to make a more thorough analysis of the specific types of learning proposed by each paper for future works on this research field. Another aspect worth analysing would be how apps add to educational purposes in order to find out what they allow to do but was not possible before their usage. This analysis would add new insights to the one carried out by Sánchez-Prieto et al. (2013).

## 8. ACKNOWLEDGEMENTS

It has been possible to develop the present work as a result of the valuable help received from several people and institutions. Firstly, I would like to thank my tutors Anke Berns and Manuel Palomo Duarte, not only for providing me with the necessary insight and expertise, but also for their encouragement and support. Moreover, I thank Juan Manuel Dodero for his valuable ideas and advice. Finally, I would also like to show my gratitude to both the library of the University of Cádiz and all those authors that helped me to gain access to all those papers needed for the SLR.

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# ANNEX 1

Annex 1. Valid publications.

| Publication | Author |
|---|---|
| A Mobile-Phone Camera Text-Recognition Game as an Vocabulary Instruction for Learning Indonesian as a Foreign Language Classroom | Mustika, M., Kao, C., Siswanto, A., Cheng, S., Heh, J. & Chang, C. |
| A Study of Language Learners' Usage of a Mobile Learning Application for Learning Idioms and Collocations | Amer, M. |
| Applications and Contents of the papagei.com App "papagei PRONOUNCE" & the Language Training "Business English Expert" | Binias, N., Meier, M. & Saager, K. |
| Applying Smartphone Technology to Compile Innovative Arabic Learner's Dictionaries | Halpern J |
| Design and user evaluation of a mobile app to teach Chinese characters | Rosell-Aguilar, F. & Quian, K. |
| Designing a smartphone app to teach English (L2) vocabulary | Wu, Q. |
| Designing Technology for Content-Independent Collaborative Mobile Learning | Boticki, I., Wong, L. H. & Looi, C. |
| Effects of English Spelling Learning Experience through a Mobile LINE APP for College Students | Shih, R., Lee, C. & Cheng, T. |
| Establishment of a Mobile-Assisted Language Teaching Model for English Teachers of Technological Universities and Colleges | Shih, R., Papa, C. & Cheng, T. |
| Foreign language learning using a gamificated APP to support peer-assessment | Palomo-Duarte, M., Berns, A., Dodero, J. & Cejas, A. |
| Game-Based Micro-learning Approach for Language Vocabulary Acquisition Using LingoSnacks | Erradi, A., Almerekhi, H. & Nahia, S. |
| Hello-hello – Language on the go! | Torres, D. |
| How We Can Entwine In-class Vocabulary Learning with Out-class One in English Course for Japanese EFL Learners | Uosaki, N., Ogata, H., Sugimoto, T., Hou, B. & Li, M. |
| Improving Literacy in Developing Countries Using Speech Recognition-supported Games on Mobile Devices | Kumar, A., Reddy, P., Tewari, A., Agrawal, R. & Kam, M. |
| Incorporating Peephole Interactions into Children's Second Language Learning Activities on Mobile Devices | McNally, B., Guha, M. L., Norooz, L., Rhodes, E. & Findlater, L. |
| Innovative use of mobile technologies in EAP oral assessment: a pilot study from The Open University | Shrestha, P. N., Fayram, J. & Demouy, V. |
| Jodo: A Tool for Foreigners to Build and Speak Hindi Sentences | Salinkar, S. & Joshi, A. |
| Learning L2 pronunciation with a mobile speech recognizer: French /y/ | Liakin, D., Cardoso, W. & Liakina, N. |
| LingoBee Mobile App: Connecting to Language Learners through Technology | Procter-Legg, E., Petersen, S. A. & Cacchione, A. |
| Mango Conversations—Japanese for English Speakers | McMeekin, A. |
| MAWL: mobile assisted word-learning | Verma, P. |
| MemReflex: Adaptive Flashcards for Mobile Microlearning | Edge, D., Fitchett, S., Whitney, M. & Landay, J. |
| Mobile authoring in a multiple language learning environment | Troussas, C., Alepis, E. & Virvou, M. |
| Mobile Incidental Learning to Support the Inclusion of Recent Immigrants | Kukulska-Hulme, A., Gaved, M., Paletta, L., Scanlon, E., Jones, A. & Brasher, A. |

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| Podcasting for Language Learning through iTunes U: The Learner's View | Rosell-Aguilar, F. |
| Pulling Mobile Assisted Language Learning (MALL) into the Mainstream: MALL in Broad Practice | Wu, Q. |
| TeachMe: Personal Learning Environment for Children | Ivanov, R. |
| The Development of Advanced Learner Oral Proficiency Using iPads | Lys, F. |
| The Effect of Smartphone on the Reading Comprehension Proficiency of Iranian EFL Learners | Gheytasi, M., Azizifar, A. & Gowhary, H. |
| The Impact of Mobile Dictionary Use on Language Learning | Rahimi, M. & Miri, S. |
| The Role of a Mobile App for Listening Comprehension Training in Distance Learning to Sustain Student Motivation | Read, T. & Kukulska-Hulme, A. |
| Tip Tap Tones: Mobile Microtraining of Mandarin Sounds | Edge, D., Cheng, K., & Whitney, M., Qian, Y., Yan, Z., & Soong, F. |
| Usability and User Satisfaction of 3D Talking-head Mobile Assisted Language Learning (MALL) App for Non-native Speakers | Segaran, K., Ali, A., & Hoe, T. |
| Using Smartphone to Facilitate English Communication and Willingness to Communicate in a Communicative Language Teaching Classroom | Luo, B., Lin, Y., Chen, N. & Fang, W. |
| Xpress: Crowdsourcing Native Speakers to Learn Colloquial Expressions in a Second Language | Chang, Y. |